

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No.: 10/630,796
Attorney Docket No.: Q71412

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (previously presented): A magnetic recording medium comprising, on a non-magnetic substrate,

at least a soft magnetic undercoat film,

an orientation control film that controls the orientation of a film provided directly above,

a perpendicular magnetic film having an axis of easy magnetization generally oriented perpendicular to said substrate,

and a protective film,

wherein the orientation control film is made of a Co alloy which contains W and the Co content of the orientation control film is at least 20 at% and equal to or less than 85 at%.
- 2 and 3. (canceled).
4. (original): The magnetic recording medium according to claim 1, wherein saturation magnetization M_s of the orientation control film is equal to or less than 200 emu/cc.
5. (original): The magnetic recording medium according to claim 1, wherein the thickness of the orientation control film is at least 0.5 nm and equal to or less than 20 nm.

6. (previously presented): The magnetic recording medium according to claim 1, wherein the orientation control film has an amorphous structure.

7. (original): The magnetic recording medium according to claim 1, wherein an intermediate film made of a material containing at least Co and Cr is provided between the orientation control film and the perpendicular magnetic film.

8. (original): The magnetic recording medium according to claim 7, wherein the intermediate film is made of a CoCrPtB alloy.

9. (previously presented): The magnetic recording medium according to claim 7, wherein the intermediate film has an amorphous initial growth portion and the thickness of the initial growth portion of the intermediate film having an amorphous structure is equal to or less than 1 nm.

10. (original): The magnetic recording medium according to claim 1, wherein the perpendicular magnetic film is made of a material containing at least Co and Pt.

11. (currently amended): A method of manufacturing a magnetic recording medium, comprising:

forming at least a soft magnetic undercoat layer, an orientation control film that controls the orientation of a film provided directly above, a perpendicular magnetic film having an axis of easy magnetization generally oriented perpendicular to a non-magnetic substrate, and a protective film, on the non-magnetic substrate, wherein

the orientation control film is made of a Co alloy which contains W and the Co content of the orientation control film is at least 20 at% and equal to or less than 85 at%.

12. (currently amended): A magnetic read/write apparatus comprising a magnetic recording medium and a magnetic head that reads and writes information on the magnetic recording medium, wherein

the magnetic head is a single pole head, and

the magnetic recording medium comprises at least a soft magnetic undercoat film, an orientation control film that controls the orientation of a film provided directly above, a perpendicular magnetic film having an axis of easy magnetization generally oriented perpendicular to a non-magnetic substrate, and a protective film, that are provided on the non-magnetic substrate, the orientation control film being made of a Co alloy which contains W and the Co content of the orientation control film is at least 20 at% and equal to or less than 85 at%.

13. (previously presented): A magnetic recording medium comprising, on a non-magnetic substrate:

at least a soft magnetic undercoat film,

an orientation control film that controls the orientation of a film provided directly above,

an intermediate film;

a perpendicular magnetic film having an axis of easy magnetization generally oriented perpendicular to said substrate,

and a protective film,

wherein the orientation control film is made of a Co alloy which contains one or more selected from Ti, V, Sr, Y, Nb, Mo, Hf, Ta, Ni and W, and

wherein the intermediate film, made of a material containing at least Co and Cr, is provided between the orientation control film and the perpendicular magnetic film and the intermediate film is in direct contact with the orientation control film.

14. (previously presented): A magnetic recording medium comprising, on a non-magnetic substrate:

at least a soft magnetic undercoat film,

an orientation control film that controls the orientation of a film provided directly above,

an intermediate film;

a perpendicular magnetic film having an axis of easy magnetization generally oriented perpendicular to said substrate,

and a protective film,

wherein the orientation control film is made of a Co alloy which contains one or more selected from Ti, V, Sr, Y, Nb, Mo, Hf, Ta, Ni and W, and

wherein the intermediate film, made of a material containing at least Co and Cr, is provided between the orientation control film and the perpendicular magnetic film, is in direct

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contact with the orientation control film, has an amorphous initial growth portion, and the thickness of the initial growth portion of the intermediate film having an amorphous structure is equal to or less than 1nm.

15. (new): A magnetic recording medium according to claim 1, wherein the Co content of the orientation content film is 50 at % or less.

16. (new): A method of manufacturing a magnetic recording medium according to claim 11 wherein the Co content of the orientation film is 50 at % or less.

17. (new): A magnetic read/write apparatus according to claim 12 wherein the Co content of the orientation film is 50 at % or less.